

WHAT IS CLAIMED IS:

1. A stable, aqueous surfactant containing composition, comprising:
 - 5 a. at least one anionic, zwitterionic, amphoteric, nonionic, or cationic surfactant, or combinations thereof;
 - b. at least one substantially crosslinked alkali-swelling acrylate copolymer rheology modifier;
 - c. water;
 - 10 d. an effective amount of at least one alkaline material to yield a composition having a pH of from about 5 to about 14; and
 - e. an effective amount of a subsequently added acidic material to yield a composition having a reduced pH of
15 from about 1 to about 12.
2. A composition according to Claim 1, wherein the said copolymer is derived from:
 - a. about 20% to about 80% by weight of at
20 least one carboxylic acid monomer comprising acrylic acid, methacrylic acid, itaconic acid, fumaric acid, crotonic acid, aconitic acid, or maleic acid, or combinations thereof;
 - b. about 80% to about 15% by weight of at least one α,β -ethylenically unsaturated monomer, wherein said
25 monomer has the formula:
 - i) $\text{CH}_2 = \text{CXY}$,
where X is H and Y is $-\text{COOR}$,
 $-\text{C}_6\text{H}_4\text{R}'$, $-\text{CN}$, $-\text{CONH}_2$, $-\text{Cl}$, $-\text{NC}_4\text{H}_8\text{O}$,

NH(CH₂)₃COOH, -NHCOCH₃,
-CONHC(CH₃)₃, -CO-N(CH₃)₂,
or X is CH₃ and Y is -COOR, -C₆H₄R',
-CN; or -CH=CH₂;

5 or X is Cl and Y is Cl, and R is C₁-C₁₈
alkyl, or hydroxy C₂-C₁₈ alkyl,
R' is H or C₁-C₁₈ alkyl
or having the formula:

ii) CH₂=CH (OCOR¹);

10 where R¹ is C₁-C₁₈ alkyl;

or having the formula:

iii) CH₂=CH₂ or CH₂=CHCH₃, and

15 c. from about 0.01 to about 5% by weight of at least
one polyunsaturated compound useful in forming a
partially or substantially crosslinked three
dimensional network.

20 3. A composition according to Claim 2, wherein the
amount of the said copolymer is from about 0.1% to about 10%
by weight based upon the total weight of said stable
composition, and wherein the amount of said surfactant is from
about 1% to about 80% by weight based upon the total weight
of said stable composition.

25 4. A composition according to Claim 3, wherein said
acidic material is citric acid, acetic acid, beta-hydroxy acid,
salicylic acid, alpha-hydroxy acid, lactic acid, glycolic acid,
hydrochloric acid, sulfuric acid, nitric acid, sulfamic acid,
phosphoric acid, or natural fruit acids, or combinations thereof.

5. A composition according to Claim 4, wherein the said copolymer is derived from:

- a. about 35% to about 65% by weight of acrylic acid or methacrylic acid, or combinations thereof,
- b. about 65% to about 35% by weight of ethylacrylate, or methylacrylate, or combinations thereof, and
- c. about 0.03% to about 3% by weight of polyalkenyl ethers of sucrose or polyalcohols; or trimethylolpropane tri(meth)acrylate, glycidyl methacrylate, N-methylolacrylamide, or combinations thereof.

6. A composition according to Claim 5, including at least one "biologically active" material having pharmaceutical, veterinary, biocidal, herbicidal, pesticidal, or other biological activity.

7. A composition according to Claim 5, including at least one substantially insoluble material requiring suspension or stabilization.

8. A composition according to Claim 7, wherein said substantially insoluble material is a "biologically active" material having pharmaceutical, veterinary, biocidal, herbicidal, pesticidal, or other biological activity.

9. A composition according to Claim 7, wherein said substantially insoluble material is a silicone, or an oily material, or a pearlescent material, or combinations thereof.

10. A composition according to Claim 9, wherein said insoluble silicone is polydimethylsiloxane, amodimethicone, amodimethicone macroemulsion or microemulsion, dimethicone, 5 dimethiconol (silicone gum), cyclomethicone, phenyltrimethicone, a dimethicone or dimethiconol microemulsion or macroemulsion, an organo polysiloxane, alkoxysilicone, or any combination thereof, wherein the amount of said silicone is from about 0.1 to about 20% by weight based upon the total weight of said stable 10 composition.

11. A composition according to Claim 9, wherein said insoluble pearlescent material is titanium dioxide coated mica, iron oxide coated mica, ethylene glycol monostearate, ethylene 15 glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, wherein the amount of said pearlescent material is from about 0.05% to about 10% by weight based upon the total weight of 20 said stable composition.

12. A composition according to Claim 10, wherein said composition is substantially free of a fatty acid, a fatty acid ester, a fatty alcohol, or combinations thereof.

25 13. A stable, aqueous surfactant containing composition, comprising:

a. at least one anionic, zwitterionic, amphoteric, nonionic, or cationic surfactant, or combinations thereof;

b. at least one substantially crosslinked alkali-swella-
ble acrylate copolymer rheology modifier;

c. water;

5 d. at least one compound which is an insoluble
silicone, or an insoluble oily material, or combinations thereof;
and

e. an effective amount of at least one
neutralizing agent to yield a final pH of from about 5.5 to
about 12.

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14. A composition according to Claim 13,
wherein the said copolymer is derived from:

a. about 20% to about 80% by weight of at
least one carboxylic acid monomer comprising acrylic acid,
15 methacrylic acid, itaconic acid, fumaric acid, crotonic acid,
aconitic acid, or maleic acid, or combinations thereof;

b. about 80% to about 15% by weight of at
least one α,β -ethylenically unsaturated monomer wherein said
monomer has the formula:

20

i) $\text{CH}_2=\text{CXY}$,

where X is H and Y is $-\text{COOR}$,

$-\text{C}_6\text{H}_4\text{R}'$, $-\text{CN}$, $-\text{CONH}_2$, $-\text{Cl}$, $-\text{NC}_4\text{H}_6\text{O}$,

$-\text{NH}(\text{CH}_2)_3\text{COOH}$, $-\text{NHCOCH}_3$,

$-\text{CONHC}(\text{CH}_3)_3$, $-\text{CO-N}(\text{CH}_3)_2$,

25

or X is CH_3 and Y is $-\text{COOR}$, $-\text{C}_6\text{H}_4\text{R}'$,
 $-\text{CN}$; or $-\text{CH}=\text{CH}_2$;

or X is Cl and Y is Cl, and

R is $\text{C}_1\text{-C}_{18}$ alkyl, or hydroxy $\text{C}_2\text{-C}_{18}$
alkyl,

R' is H or C₁-C₁₈ alkyl

or having the formula:

ii) CH₂=CH (OCOR¹);

where R¹ is C₁-C₁₈ alkyl;

or having the formula:

iii) CH₂=CH₂ or CH₂=CHCH₃, and

- c. from about 0.01 to about 5% by weight of at least one polyunsaturated compound useful in forming a partially or substantially crosslinked three dimensional network.

15. A composition according to Claim 14, wherein the amount of said surfactant is from about 1% to about 80% by weight based upon the total weight of said stable composition, and wherein the amount of the said copolymer is from about 0.1% to about 10% by weight based upon the total weight of said aqueous composition.

16. A stable, aqueous surfactant according to Claim 15, wherein the said copolymer is derived from

- a. about 35% to about 65% by weight of acrylic acid or methacrylic acid, or combinations thereof,
- b. about 65% to about 35% by weight of ethylacrylate, or methylacrylate, or combinations thereof, and
- c. about 0.03% to about 3% by weight of polyalkenyl ethers of sucrose or polyalcohols; or trimethylolpropane

tri(meth)acrylate, glycidyl ethacrylate,
N-methylolacrylamide, or combinations
thereof.

5 17. A composition according to Claim 14, wherein said
insoluble silicone is polydimethylsiloxane, amodimethicone,
amodimethicone macroemulsion or microemulsion, dimethicone,
dimethiconol (silicone gum), cyclomethicone, phenyltrimethicone,
10 a dimethicone or dimethiconol microemulsion or macroemulsion,
an organo polysiloxane, alkoxysilicone, or any combination
thereof, and wherein the amount of said silicone is from about
0.1 to about 20% by weight based upon the total weight of said
stable composition.

15 18. A composition according to Claim 16, wherein said
insoluble silicone is polydimethylsiloxane, amodimethicone,
amodimethicone macroemulsion or microemulsion, dimethicone,
dimethiconol (silicone gum), cyclomethicone, phenyltrimethicone,
a dimethicone or dimethiconol microemulsion or macroemulsion,
20 an organopolysiloxane, alkoxysilicone, or any combination
thereof, and wherein the amount of said silicone is from about
0.1 to about 20% by weight based upon the total weight of said
stable composition.

25 19. A composition according to Claim 18, wherein said
composition is substantially free of a fatty acid, a fatty alcohol, a
fatty acid ester, or combinations thereof.

20. An improved or enhanced pearlescent appearance of a stable, aqueous surfactant containing composition, comprising:

- 5 a. at least one anionic, zwitterionic, amphoteric, nonionic, or cationic surfactant, or combinations thereof;
- b. at least one substantially crosslinked alkali-swellable acrylate copolymer rheology modifier;
- c. water;
- 10 d. at least one pearlescent material; and
- e. an effective amount of at least one neutralizing agent to yield a final pH of from about 5.5 to about 12.

15 21. A composition according to Claim 20, wherein the said copolymer is derived from:

- 20 a. about 20% to about 80% by weight of at least one carboxylic acid monomer comprising acrylic acid, methacrylic acid, itaconic acid, fumaric acid, crotonic acid, aconitic acid, or maleic acid, or combinations thereof;
- b. about 80% to about 15% by weight of at least one α,β -ethylenically unsaturated monomer wherein said monomer has the
- 25 formula:



where X is H and Y is $-\text{COOR},$

$-\text{C}_6\text{H}_4\text{R}', -\text{CN}, -\text{CONH}_2, -\text{Cl}, -\text{NC}_4\text{H}_9\text{O},$

-NH(CH₂)₃COOH, -NHCOCH₃,
-CONHC(CH₃)₃, -CO-N(CH₃)₂,
or X is CH₃ and Y is -COOR, -C₆H₄R',
-CN; or -CH=CH₂;

or X is Cl and Y is Cl, and

R is C₁-C₁₈ alkyl, or hydroxy C₂-C₁₈
alkyl,

R' is H or C₁-C₁₈ alkyl

or having the formula:

ii) CH₂=CH (OCOR¹);

where R¹ is C₁-C₁₈ alkyl;

or having the formula:

iii) CH₂=CH₂ or CH₂=CHCH₃, and

- c. from about 0.01 to about 5% by weight of at
least one polyunsaturated compound useful
in forming a partially or substantially
crosslinked three dimensional network.

22. A composition according to Claim 21, wherein the
amount of said surfactant is from about 1% to about 80% by
weight based upon the total weight of said stable composition,
and wherein the amount of the said copolymer is from about
0.1% to about 10% by weight based upon the total weight of
said aqueous composition.

23. A composition according to Claim 22, wherein the
said copolymer is derived from

- a. about 35% to about 65% by weight of acrylic acid or methacrylic acid, or combinations thereof,
- b. about 65% to about 35% by weight of ethylacrylate, or methylacrylate, or combinations thereof, and
- c. about 0.03% to about 3% by weight of polyalkenyl ethers of sucrose or polyalcohols; or trimethylolpropane tri(meth)acrylate, glycidyl methacrylate, N-methylolacrylamide, or combinations thereof.

24. A composition according to Claim 21, wherein said pearlescent material is titanium dioxide coated mica, iron oxide coated mica, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, wherein the amount of said pearlescent material is from about 0.05% to about 10% by weight based upon the total weight of said stable composition.

25. A composition according to Claim 23, wherein said pearlescent material is titanium dioxide coated mica, iron oxide coated mica, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, wherein the amount of said pearlescent material is from about 0.05% to

about 10% by weight based upon the total weight of said stable composition.

5 26. A composition according to Claim 25, wherein said pearlescent material is titanium dioxide coated mica having an average particle size of from about 2 to about 150 microns in diameter.

10 27. A stable, aqueous temporary hair dye composition comprising:

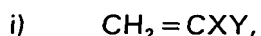
- 15 a. at least one zwitterionic, amphoteric, nonionic, or cationic surfactant, or combinations thereof;
- b. at least one substantially crosslinked alkali-swallowable acrylate copolymer rheology modifier;
- c. water;
- d. at least one cationic hair dye; and
- 20 e. an effective amount of at least one neutralizing agent to yield a final pH of from about 5 to about 9.

 28. A composition according to Claim 27, wherein the said copolymer is derived from:

- 25 a. about 20% to about 80% by weight of at least one carboxylic acid monomer comprising acrylic acid, methacrylic acid, itaconic acid, fumaric acid, crotonic acid,

aconitic acid, or maleic acid, or combinations thereof;

- b. about 80% to about 15% by weight of at least one α,β -ethylenically unsaturated monomer wherein said monomer has the formula:



where X is H and Y is $-\text{COOR},$

$-\text{C}_6\text{H}_4\text{R}', -\text{CN}, -\text{CONH}_2, -\text{Cl}, -\text{NC}_4\text{H}_6\text{O},$

$-\text{NH}(\text{CH}_2)_3\text{COOH}, -\text{NHCOCH}_3,$

$-\text{CONHC}(\text{CH}_3)_3, -\text{CO-N}(\text{CH}_3)_2,$

or X is CH_3 and Y is $-\text{COOR}, -\text{C}_6\text{H}_4\text{R}',$

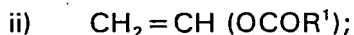
$-\text{CN};$ or $-\text{CH} = \text{CH}_2;$

or X is Cl and Y is Cl, and

R is $\text{C}_1\text{-C}_{18}$ alkyl, or hydroxy $\text{C}_2\text{-C}_{18}$ alkyl,

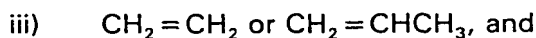
R' is H or $\text{C}_1\text{-C}_{18}$ alkyl

or having the formula:



where R^1 is $\text{C}_1\text{-C}_{18}$ alkyl;

or having the formula:



- c. from about 0.01 to about 5% by weight of at least one polyunsaturated compound useful in forming a partially or substantially crosslinked three dimensional network.

29. A composition according to Claim 28, wherein the amount of said surfactant is from about 1% to about 80% by

weight based upon the total weight of said stable composition, and wherein the amount of the said copolymer is from about 0.1% to about 10% by weight based upon the total weight of said aqueous composition.

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30. A composition according to Claim 29, wherein the said copolymer is derived from

- 10 a. about 35% to about 65% by weight of acrylic acid or methacrylic acid, or combinations thereof,
- b. about 65% to about 35% by weight of ethylacrylate, or methylacrylate, or combinations thereof, and
- 15 c. about 0.03% to about 3% by weight of polyalkenyl ethers of sucrose or polyalcohols; or trimethylolpropane tri(meth)acrylate, glycidyl methacrylate, N-methylolacrylamide, or combinations thereof.

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31. A composition according to Claim 28, wherein said cationic hair dye is an azo dye, or an anthraquinone dye, or combinations thereof, and wherein the amount of said hair dye is from about 0.1% to about 5% by weight based upon the total weight of the stabilized composition.

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32. A composition according to Claim 31, wherein said azo dye is Basic Brown 16 (CI 12250), Basic Brown 17 (CI 12251), Basic Red 76 (12245), Basic Yellow 57 (CI 12719), and wherein said anthraquinone dye is Basic Blue 99 (CI 56059).

33. A composition according to Claim 30, wherein said cationic hair dye is an azo dye, or an anthraquinone dye, or combinations thereof, and wherein the amount of said hair dye is
5 from about 0.1% to about 5% by weight based upon the total weight of the stabilized composition.

34. A composition according to Claim 33, wherein said azo dye is Basic Brown 16 (CI 12250), Basic Brown 17 (CI
10 12251), Basic Red 76 (12245), Basic Yellow 57 (CI 12719), and wherein said anthraquinone dye is Basic Blue 99 (CI 56059).

35. A composition according to Claim 13, whereby said composition includes at least one pearlescent material, or at least
15 one cationic hair dye, or combinations thereof, and said composition is stable.

36. A composition according to Claim 18, whereby said composition includes at least one pearlescent material, or at least
20 one cationic hair dye, or combinations thereof, and said composition is stable.

37. A composition according to Claim 36, wherein said pearlescent material is titanium dioxide coated mica, iron oxide
25 coated mica, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, and wherein the amount of said pearlescent material is from about 0.05% to

about 10% by weight based upon the total weight of said composition.

5 38. A composition according to Claim 24, whereby said composition additionally contains at least one insoluble silicone, or at least one soluble silicone, or at least one soluble cationic hair dye, or combinations thereof, and said composition is stable.

10 39. A composition according to Claim 31, whereby said composition additionally contains at least one insoluble silicone, or at least one soluble silicone, or at least one pearlescent material, or combinations thereof, and wherein said composition is stable.

15 40. A composition according to Claim 5, wherein said composition is a personal care cleansing composition, wherein said acid is salicylic acid or alpha-hydroxy acid, and wherein the amount of said acid is from about 0.2 to about 6 % by weight.

20 41. A composition according to Claim 5, wherein said composition is a personal care emulsion composition, wherein said acid is an alpha-hydroxy acid or beta-hydroxy acid, and wherein the amount of said acid is from about 0.2% to about 15 % by weight.

25 42. A composition according to claim 37, wherein said composition is a personal care cleansing composition, and wherein the amount of said insoluble silicone is from about 0.1 % to about 5% by weight, and wherein the amount of said

pearlescent material is from about 0.05% to about 3% by weight.

43. A composition according to claim 17, including at
5 least one cationic conditioning polymer, and wherein the amount of said cationic polymer is from about 0.01 to 5 % by weight.

44. A composition according to claim 43, wherein said
cationic conditioning polymer is cationic guar gum,
10 polyquaternium-4, polyquaternium-6, polyquaternium-7,
polyquaternium-10, polyquaternium-11, polyquaternium-16,
polyquaternium-24, polyquaternium-39, or combinations thereof.

45. A composition according to Claim 43, including at
15 least one pearlescent material.

46. A composition according to Claim 45, wherein said
pearlescent material is titanium dioxide coated mica having an
average particle size of from about 2 to about 150 microns in
20 diameter.

47. A composition according to Claim 7, wherein said
composition is an anti-dandruff shampoo, wherein said
substantially insoluble material requiring suspension or
25 stabilization is zinc pyrithione, and wherein the amount of said
zinc pyrithione is from about 0.1% to 5% by weight.

48. A composition according to Claim 2, including at least one substantially insoluble material requiring suspension or stabilization.

5 49. A composition according to Claim 48, wherein said substantially insoluble material is a silicone, or an oily material, or a pearlescent material, or combinations thereof.

10 50. A composition according to Claim 49, wherein said insoluble silicone is polydimethylsiloxane, amodimethicone, amodimethicone macroemulsion or microemulsion, dimethicone, dimethiconol (silicone gum), cyclomethicone, phenyltrimethicone, a dimethicone or dimethiconol microemulsion or macroemulsion, an organosiloxane, alkoxysilicone, or any combination thereof, 15 wherein the amount of said silicone is from about 0.1 to about 20% by weight based upon the total weight of said stable composition.

20 51. A composition according to Claim 49, wherein said insoluble pearlescent material is titanium dioxide coated mica, iron oxide coated mica, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, 25 wherein the amount of said pearlescent material is from about 0.05% to about 10% by weight based upon the total weight of said stable composition.

52. A process for preparing a stable, aqueous surfactant containing composition, comprising the steps of:

- 5
- a. forming a mixture comprising at least one anionic, zwitterionic, amphoteric, nonionic, or cationic surfactant, or combinations thereof; at least one substantially crosslinked alkali-swelling acrylate copolymer rheology modifier; and water;
- 10
- b. neutralizing said mixture with an effective amount of an alkaline material to increase the pH of said mixture to at least about 5; and
- c. adding an effective amount of an acidic material to reduce the pH of said mixture from about 0.5 to about 5 pH units.

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53. A process according to Claim 52, wherein the said copolymer is derived from:

- 20
- a. about 20% to about 80% by weight of at least one carboxylic acid monomer comprising acrylic acid, methacrylic acid, itaconic acid, fumaric acid, crotonic acid, aconitic acid, or maleic acid, or combinations thereof;
- 25
- b. about 80% to about 15% by weight of at least one α,β -ethylenically unsaturated monomer wherein said monomer has the formula:
- i) $\text{CH}_2=\text{CXY}$,

where X is H and Y is -COOR,
 -C₆H₄R', -CN, -CONH₂, -Cl, -NC₄H₈O,
 -NH(CH₂)₃COOH, -NHCOCH₃,
 -CONHC(CH₃)₃, -CO-N(CH₃)₂,
 or X is CH₃ and Y is -COOR, -C₆H₄R',
 -CN; or -CH=CH₂;
 or X is Cl and Y is Cl, and
 R is C₁-C₁₈ alkyl, or hydroxy C₂-C₁₈
 alkyl,

R' is H or C₁-C₁₈ alkyl
 or having the formula:

ii) CH₂=CH (OCOR¹);
 where R¹ is C₁-C₁₈ alkyl;
 or having the formula:

iii) CH₂=CH₂ or CH₂=CHCH₃, and

c. from about 0.01 to about 5% by weight of at
 least one polyunsaturated compound useful
 in forming a partially or substantially
 crosslinked three dimensional network.

54. A process according to Claim 53, wherein the
 amount of said substantially alkali-swelling crosslinked polymer
 is from about 0.1% to about 10% by weight based upon the
 total weight of said stable composition, and wherein the amount
 of said surfactant is from about 1% to about 80% by weight
 based upon the total weight of said stable composition.

55. A process according to Claim 54, wherein the said
 copolymer is derived from:

- a. about 35% to about 65% by weight of acrylic acid or methacrylic acid, or combinations thereof,
- 5 b. about 65% to about 35% by weight of ethylacrylate, or methylacrylate, or combinations thereof, and
- c. about 0.03% to about 3% by weight of polyalkenyl ethers of sucrose or polyalcohols; or trimethylolpropane tri(meth)acrylate, glycidyl methacrylate, N-methylolacrylamide, 10 or combinations thereof.

56. A process according to Claim 54, wherein said acidic material is citric acid, acetic acid, beta-hydroxy acid, 15 salicylic acid, alpha-hydroxy acid, lactic acid, glycolic acid, hydrochloric acid, sulfuric acid, nitric acid, sulfamic acid, or phosphoric acid, or natural fruit acids, or combinations thereof.

57. A process according to Claim 56, including forming 20 a stable composition of a substantially insoluble material requiring suspension or stabilization.

58. A composition according to Claim 57, wherein said substantially insoluble material is a silicone, or an oily material, or 25 a pearlescent material, or combinations thereof.

59. A composition according to Claim 58, wherein said insoluble silicone is polydimethylsiloxane, amodimethicone, amodimethicone macroemulsion or microemulsion, dimethicone,

dimethiconol (silicone gum), cyclomethicone, phenyltrimethicone, a dimethicone or dimethiconol microemulsion or macroemulsion, an organopolysiloxane, alkoxysilicone, or any combination thereof, wherein the amount of said silicone is from about 0.1 to
5 about 20% by weight based upon the total weight of said stable composition.

60. A composition according to Claim 58, wherein said insoluble pearlescent material is titanium dioxide coated mica,
10 iron oxide coated mica, ethylene glycol monostearate, ethylene glycol distearate, polyethylene glycol distearate, bismuth oxychloride coated mica, myristyl myristate, guanine (fish scales), or glitter (polyester or metallic), or combinations thereof, wherein the amount of said pearlescent material is from about
15 0.05% to about 10% by weight based upon the total weight of said stable composition.